



OIPE

RAW SEQUENCE LISTING

DATE: 01/31/2002

PATENT APPLICATION: US/10/033,026

TIME: 10:29:08

Input Set : N:\Crf3\RULE60\10033026.txt

Output Set: N:\CRF3\01312002\J033026.raw

3 <110> APPLICANT: Lipscombe, Diane
4 Schorge, Stephanie
6 <120> TITLE OF INVENTION: HUMAN N-TYPE CALCIUM CHANNEL ISOFORM AND USES THEREOF
8 <130> FILE REFERENCE: B1055/7000
10 <140> CURRENT APPLICATION NUMBER: 10/033,026
11 <141> CURRENT FILING DATE: 2001-12-28
13 <150> PRIOR APPLICATION NUMBER: US 09/268,163
14 <151> PRIOR FILING DATE: 1999-03-12
16 <150> PRIOR APPLICATION NUMBER: US 60/077,901
17 <151> PRIOR FILING DATE: 1998-03-13
19 <160> NUMBER OF SEQ ID NOS: 28
21 <170> SOFTWARE: FastSEQ for Windows Version 3.0
23 <210> SEQ ID NO: 1
24 <211> LENGTH: 12
25 <212> TYPE: DNA
26 <213> ORGANISM: Homo sapiens
28 <400> SEQUENCE: 1
29 gagcttcgtg gg
31 <210> SEQ ID NO: 2
32 <211> LENGTH: 4
33 <212> TYPE: PRT
34 <213> ORGANISM: Homo sapiens
36 <400> SEQUENCE: 2
37 Ser Phe Val Gly
38 1
40 <210> SEQ ID NO: 3
41 <211> LENGTH: 7376
42 <212> TYPE: DNA
43 <213> ORGANISM: Homo sapiens
45 <220> FEATURE:
46 <221> NAME/KEY: CDS
47 <222> LOCATION: 146..7174
49 <400> SEQUENCE: 3
50 gcggcgccggt ctgcggcggt ggggcccgggc gaggtccgct gcgggtcccgg cggtcccggt 60
51 gctgctccgc tctgagcgcc tggcgcgccc cgcgcctcc ctgccggggc cgctggggccg 120
52 gggatgcacg cggggcccgg gagcc atg gtc cgc ttc ggg gac gag ctg ggc 172
53 Met Val Arg Phe Gly Asp Glu Leu Gly
54 1 5
55 ggc cgc tat gga ggc ccc ggc ggc gga gag cgg gcc cgg ggc ggc ggg 220
56 Gly Arg Tyr Gly Gly Pro Gly Gly Gly Glu Arg Ala Arg Gly Gly Gly
57 10 15 20 25
58 gcc ggc ggg gcg ggg ggc ccg ggt ccc ggg ggg ctg cag ccc ggc cag 268
59 Ala Gly Gly Ala Gly Gly Pro Gly Pro Gly Gly Leu Gln Pro Gly Gln

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| | 30 | 35 | 40 | |
|-----|---|-----|-----|------|
| 61 | cgg gtc ctc tac aag caa tcg atc gcg cag cgc gcg cgg acc atg gcg | | | 316 |
| 62 | Arg Val Leu Tyr Lys Gln Ser Ile Ala Gln Arg Ala Arg Thr Met Ala | | | |
| 63 | 45 | 50 | 55 | |
| 64 | ctg tac aac ccc atc ccg gtc aag cag aac tgc ttc acc gtc aac cgc | | | 364 |
| 65 | Leu Tyr Asn Pro Ile Pro Val Lys Gln Asn Cys Phe Thr Val Asn Arg | | | |
| 66 | 60 | 65 | 70 | |
| 67 | tcg ctc ttc gtc ttc agc gag gac aac gtc gtc cgc aaa tac gcg aag | | | 412 |
| 68 | Ser Leu Phe Val Phe Ser Glu Asp Asn Val Val Arg Lys Tyr Ala Lys | | | |
| 69 | 75 | 80 | 85 | |
| 70 | cgc atc acc gag tgg cct cca ttc gag tat atg atc ctg gcc acc atc | | | 460 |
| 71 | Arg Ile Thr Glu Trp Pro Pro Phe Glu Tyr Met Ile Leu Ala Thr Ile | | | |
| 72 | 90 | 95 | 100 | 105 |
| 73 | atc gcc aac tgc atc gtg ctg gcc ctg gag cag cac ctc cct gat ggg | | | 508 |
| 74 | Ile Ala Asn Cys Ile Val Leu Ala Leu Glu Gln His Leu Pro Asp Gly | | | |
| 75 | 110 | 115 | 120 | |
| 76 | gac aaa acg ccc atg tcc gag cgg ctg gac gac acg gag ccc tat ttc | | | 556 |
| 77 | Asp Lys Thr Pro Met Ser Glu Arg Leu Asp Asp Thr Glu Pro Tyr Phe | | | |
| 78 | 125 | 130 | 135 | |
| 79 | atc ggg atc ttt tgc ttc gag gca ggg atc aaa atc atc gct ctg ggc | | | 604 |
| 80 | Ile Gly Ile Phe Cys Phe Glu Ala Gly Ile Lys Ile Ile Ala Leu Gly | | | |
| 81 | 140 | 145 | 150 | |
| 82 | ttt gtc ttc cac aag ggc tct tac ctg cgg aac ggc tgg aac gtc atg | | | 652 |
| 83 | Phe Val Phe His Lys Gly Ser Tyr Leu Arg Asn Gly Trp Asn Val Met | | | |
| 84 | 155 | 160 | 165 | |
| 85 | gac ttc gtg gtc gtc ctc aca ggg atc ctt gcc acg gct gga act gac | | | 700 |
| 86 | Asp Phe Val Val Val Leu Thr Gly Ile Leu Ala Thr Ala Gly Thr Asp | | | |
| 87 | 170 | 175 | 180 | 185 |
| 88 | ttc gac ctg cga aca ctg agg gct gtg cgt gtg ctg agg ccc ctg aag | | | 748 |
| 89 | Phe Asp Leu Arg Thr Leu Arg Ala Val Arg Val Leu Arg Pro Leu Lys | | | |
| 90 | 190 | 195 | 200 | |
| 91 | ctg gtg tct ggg att cca agt ttg cag gtg gtg ctc aag tcc atc atg | | | 796 |
| 92 | Leu Val Ser Gly Ile Pro Ser Leu Gln Val Val Leu Lys Ser Ile Met | | | |
| 93 | 205 | 210 | 215 | |
| 94 | aag gcc atg gtt cca ctc ctg cag att ggg ctg ctt ctc ttc ttt gcc | | | 844 |
| 95 | Lys Ala Met Val Pro Leu Leu Gln Ile Gly Leu Leu Leu Phe Phe Ala | | | |
| 96 | 220 | 225 | 230 | |
| 97 | atc ctc atg ttt gcc atc att ggc ctg gag ttc tac atg ggc aag ttc | | | 892 |
| 98 | Ile Leu Met Phe Ala Ile Ile Gly Leu Glu Phe Tyr Met Gly Lys Phe | | | |
| 99 | 235 | 240 | 245 | |
| 100 | cac aag gcc tgt ttc ccc aac agc aca gat gcg gag ccc gtg ggt gac | | | 940 |
| 101 | His Lys Ala Cys Phe Pro Asn Ser Thr Asp Ala Glu Pro Val Gly Asp | | | |
| 102 | 250 | 255 | 260 | 265 |
| 103 | ttc ccc tgt ggc aag gag gcc cca gcc cgg ctg tgc gag ggc gac act | | | 988 |
| 104 | Phe Pro Cys Gly Lys Glu Ala Pro Ala Arg Leu Cys Glu Gly Asp Thr | | | |
| 105 | 270 | 275 | 280 | |
| 106 | gag tgc cgg gag tac tgg cca gga ccc aac ttt ggc atc acc aac ttt | | | 1036 |
| 107 | Glu Cys Arg Glu Tyr Trp Pro Gly Pro Asn Phe Gly Ile Thr Asn Phe | | | |
| 108 | 285 | 290 | 295 | |

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| | | |
|-----|---|------|
| 109 | gac aat atc ctg ttt gcc atc ttg acg gtg ttc cag tgc atc acc atg | 1084 |
| 110 | Asp Asn Ile Leu Phe Ala Ile Leu Thr Val Phe Gln Cys Ile Thr Met | |
| 111 | 300 305 310 | |
| 112 | gag ggc tgg act gac atc ctc tat aat aca aac gat gcg gcc ggc aac | 1132 |
| 113 | Glu Gly Trp Thr Asp Ile Leu Tyr Asn Thr Asn Asp Ala Ala Gly Asn | |
| 114 | 315 320 325 | |
| 115 | acc tgg aac tgg ctc tac ttc atc cct ctc atc atc atc ggc tcc ttc | 1180 |
| 116 | Thr Trp Asn Trp Leu Tyr Phe Ile Pro Leu Ile Ile Ile Gly Ser Phe | |
| 117 | 330 335 340 345 | |
| 118 | ttc atg ctc aac ctg gtg ctg ggc gtg ctc tcg ggg gag ttt gcc aag | 1228 |
| 119 | Phe Met Leu Asn Leu Val Leu Gly Val Leu Ser Gly Glu Phe Ala Lys | |
| 120 | 350 355 360 | |
| 121 | gag cga gag agg gtg gag aac cgc cgc gcc ttc ctg aag ctg cgc cgg | 1276 |
| 122 | Glu Arg Glu Arg Val Glu Asn Arg Arg Ala Phe Leu Lys Leu Arg Arg | |
| 123 | 365 370 375 | |
| 124 | cag cag cag atc gag cga gag ctc aac ggg tac ctg gag tgg atc ttc | 1324 |
| 125 | Gln Gln Gln Ile Glu Arg Glu Leu Asn Gly Tyr Leu Glu Trp Ile Phe | |
| 126 | 380 385 390 | |
| 127 | aag gcg gag gaa gtc atg ctg gcc gag gag gac agg aat gca gag gag | 1372 |
| 128 | Lys Ala Glu Glu Val Met Leu Ala Glu Glu Asp Arg Asn Ala Glu Glu | |
| 129 | 395 400 405 | |
| 130 | aag tcc cct ttg gac gtg ctg aag aga gcg gcc acc aag aag agc aga | 1420 |
| 131 | Lys Ser Pro Leu Asp Val Leu Lys Arg Ala Ala Thr Lys Lys Ser Arg | |
| 132 | 410 415 420 425 | |
| 133 | aat gac ctg atc cac gca gag gag gga gag gac cgg ttt gca gat ctc | 1468 |
| 134 | Asn Asp Leu Ile His Ala Glu Glu Gly Glu Asp Arg Phe Ala Asp Leu | |
| 135 | 430 435 440 | |
| 136 | tgt gct gtt gga tcc ccc ttc gcc cgc gcc agc ctc aag agc ggg aag | 1516 |
| 137 | Cys Ala Val Gly Ser Pro Phe Ala Arg Ala Ser Leu Lys Ser Gly Lys | |
| 138 | 445 450 455 | |
| 139 | aca gag agc tcg tca tac ttc cgg agg aag gag aag atg ttc cgg ttt | 1564 |
| 140 | Thr Glu Ser Ser Ser Tyr Phe Arg Arg Lys Glu Lys Met Phe Arg Phe | |
| 141 | 460 465 470 | |
| 142 | ttt atc cgg cgc atg gtg aag gct cag agc ttc tac tgg gtg gtg ctg | 1612 |
| 143 | Phe Ile Arg Arg Met Val Lys Ala Gln Ser Phe Tyr Trp Val Val Leu | |
| 144 | 475 480 485 | |
| 145 | tgc gtg gtg gcc ctg aac aca ctg tgt gtg gcc atg gtg cat tac aac | 1660 |
| 146 | Cys Val Val Ala Leu Asn Thr Leu Cys Val Ala Met Val His Tyr Asn | |
| 147 | 490 495 500 505 | |
| 148 | cag ccg cgg cgg ctt acc acg acc ctg tat ttt gca gag ttt gtt ttc | 1708 |
| 149 | Gln Pro Arg Arg Leu Thr Thr Thr Leu Tyr Phe Ala Glu Phe Val Phe | |
| 150 | 510 515 520 | |
| 151 | ctg ggt ctc ttc ctc aca gag atg tcc ctg aag atg tat ggc ctg ggg | 1756 |
| 152 | Leu Gly Leu Phe Leu Thr Glu Met Ser Leu Lys Met Tyr Gly Leu Gly | |
| 153 | 525 530 535 | |
| 154 | ccc aga agc tac ttc cgg tcc tcc ttc aac tgc ttc gac ttt ggg gtc | 1804 |
| 155 | Pro Arg Ser Tyr Phe Arg Ser Ser Phe Asn Cys Phe Asp Phe Gly Val | |
| 156 | 540 545 550 | |
| 157 | atc gtg ggg agc gtc ttt gaa gtg gtc tgg gcg gcc atc aag ccg gga | 1852 |

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| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| 158 | Ile | Val | Gly | Ser | Val | Phe | Glu | Val | Val | Trp | Ala | Ala | Ile | Lys | Pro | Gly | |
| 159 | | 555 | | | | | 560 | | | | | 565 | | | | | |
| 160 | agc | tcc | ttt | ggg | atc | agt | gtg | ctg | cgg | gcc | ctc | cgc | ctg | ctg | agg | atc | 1900 |
| 161 | Ser | Ser | Phe | Gly | Ile | Ser | Val | Leu | Arg | Ala | Leu | Arg | Leu | Leu | Arg | Ile | |
| 162 | 570 | | | | | 575 | | | | | 580 | | | | | 585 | |
| 163 | ttc | aaa | gtc | acg | aag | tac | tgg | agc | tcc | ctg | cgg | aac | ctg | gtg | gtg | tcc | 1948 |
| 164 | Phe | Lys | Val | Thr | Lys | Tyr | Trp | Ser | Ser | Leu | Arg | Asn | Leu | Val | Val | Ser | |
| 165 | | | | | 590 | | | | | | 595 | | | | | 600 | |
| 166 | ctg | ctg | aac | tcc | atg | aag | tcc | atc | atc | agc | ctg | ctc | ttc | ttg | ctc | ttc | 1996 |
| 167 | Leu | Leu | Asn | Ser | Met | Lys | Ser | Ile | Ile | Ser | Leu | Leu | Phe | Leu | Leu | Phe | |
| 168 | | | | 605 | | | | | 610 | | | | | 615 | | | |
| 169 | ctg | ttc | att | gtg | gtc | ttc | gcc | ctg | ctg | ggg | atg | cag | ctg | ttt | ggg | gga | 2044 |
| 170 | Leu | Phe | Ile | Val | Val | Phe | Ala | Leu | Leu | Gly | Met | Gln | Leu | Phe | Gly | Gly | |
| 171 | | | 620 | | | | | 625 | | | | | 630 | | | | |
| 172 | cag | ttc | aac | ttc | cag | gat | gag | act | ccc | aca | acc | aac | ttc | gac | acc | ttc | 2092 |
| 173 | Gln | Phe | Asn | Phe | Gln | Asp | Glu | Thr | Pro | Thr | Thr | Asn | Phe | Asp | Thr | Phe | |
| 174 | | 635 | | | | | 640 | | | | | 645 | | | | | |
| 175 | cct | gcc | gcc | atc | ctc | act | gtc | ttc | cag | atc | ctg | acg | gga | gag | gac | tgg | 2140 |
| 176 | Pro | Ala | Ala | Ile | Leu | Thr | Val | Phe | Gln | Ile | Leu | Thr | Gly | Glu | Asp | Trp | |
| 177 | 650 | | | | | 655 | | | | | 660 | | | | | 665 | |
| 178 | aat | gca | gtg | atg | tat | cac | ggg | atc | gaa | tcg | caa | ggc | ggc | gtc | agc | aaa | 2188 |
| 179 | Asn | Ala | Val | Met | Tyr | His | Gly | Ile | Glu | Ser | Gln | Gly | Gly | Val | Ser | Lys | |
| 180 | | | | 670 | | | | | 675 | | | | | 680 | | | |
| 181 | ggc | atg | ttc | tcg | tcc | ttt | tac | ttc | att | gtc | ctg | aca | ctg | ttc | gga | aac | 2236 |
| 182 | Gly | Met | Phe | Ser | Ser | Phe | Tyr | Phe | Ile | Val | Leu | Thr | Leu | Phe | Gly | Asn | |
| 183 | | | 685 | | | | | | 690 | | | | | 695 | | | |
| 184 | tac | act | ctg | ctg | aat | gtc | ttt | ctg | gcc | atc | gct | gtg | gac | aac | ctg | gcc | 2284 |
| 185 | Tyr | Thr | Leu | Leu | Asn | Val | Phe | Leu | Ala | Ile | Ala | Val | Asp | Asn | Leu | Ala | |
| 186 | | 700 | | | | | 705 | | | | | | 710 | | | | |
| 187 | aac | gcc | caa | gag | ctg | acc | aag | gat | gaa | gag | gag | atg | gaa | gaa | gca | gcc | 2332 |
| 188 | Asn | Ala | Gln | Glu | Leu | Thr | Lys | Asp | Glu | Glu | Glu | Met | Glu | Glu | Ala | Ala | |
| 189 | | 715 | | | | 720 | | | | | 725 | | | | | | |
| 190 | aat | cag | aag | ctt | gct | ctg | caa | aag | gcc | aaa | gaa | gtg | gct | gaa | gtc | agc | 2380 |
| 191 | Asn | Gln | Lys | Leu | Ala | Leu | Gln | Lys | Ala | Lys | Glu | Val | Ala | Glu | Val | Ser | |
| 192 | 730 | | | | | 735 | | | | | 740 | | | | | 745 | |
| 193 | ccc | atg | tct | gcc | gcg | aac | atc | tcc | atc | gcc | gcc | agg | cag | cag | aac | tcg | 2428 |
| 194 | Pro | Met | Ser | Ala | Ala | Asn | Ile | Ser | Ile | Ala | Ala | Arg | Gln | Gln | Asn | Ser | |
| 195 | | | | 750 | | | | | 755 | | | | | 760 | | | |
| 196 | gcc | aag | gcg | cgc | tcg | gtg | tgg | gag | cag | cgg | gcc | agc | cag | cta | cgg | ctg | 2476 |
| 197 | Ala | Lys | Ala | Arg | Ser | Val | Trp | Glu | Gln | Arg | Ala | Ser | Gln | Leu | Arg | Leu | |
| 198 | | | 765 | | | | | 770 | | | | | 775 | | | | |
| 199 | cag | aac | ctg | cgg | gcc | agc | tgc | gag | gcg | ctg | tac | agc | gag | atg | gac | ccc | 2524 |
| 200 | Gln | Asn | Leu | Arg | Ala | Ser | Cys | Glu | Ala | Leu | Tyr | Ser | Glu | Met | Asp | Pro | |
| 201 | | 780 | | | | | | 785 | | | | | 790 | | | | |
| 202 | gag | gag | cgg | ctg | cgc | ttc | gcc | act | acg | cgc | cac | ctg | cgg | ccc | gac | atg | 2572 |
| 203 | Glu | Glu | Arg | Leu | Arg | Phe | Ala | Thr | Thr | Arg | His | Leu | Arg | Pro | Asp | Met | |
| 204 | | 795 | | | | 800 | | | | | | 805 | | | | | |
| 205 | aag | acg | cac | ctg | gac | cgg | ccg | ctg | gtg | gtg | gag | ctg | ggc | cgc | gac | ggc | 2620 |
| 206 | Lys | Thr | His | Leu | Asp | Arg | Pro | Leu | Val | Val | Glu | Leu | Gly | Arg | Asp | Gly | |

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| | | | | | | | | |
|-----|------|-----|-----|-----|------|-----|------|-----|
| 207 | 810 | | 815 | | 820 | | 825 | |
| 208 | gcg | cgg | ggg | ccc | gtg | gga | ggc | aaa |
| 209 | Ala | Arg | Gly | Pro | Val | Gly | Gly | Lys |
| 210 | | | | | 830 | | 835 | |
| 211 | ccc | gag | ggc | gtc | gac | cct | ccg | cgc |
| 212 | Pro | Glu | Gly | Val | Asp | Pro | Pro | Arg |
| 213 | | | | | 845 | | 850 | |
| 214 | gac | aag | acc | ccc | gcg | gcg | ggg | gac |
| 215 | Asp | Lys | Thr | Pro | Ala | Ala | Gly | Asp |
| 216 | | | | | 860 | | 865 | |
| 217 | gcg | gag | agc | ggg | gag | ccc | ggt | gcc |
| 218 | Ala | Glu | Ser | Gly | Glu | Pro | Gly | Ala |
| 219 | | | | | 875 | | 880 | |
| 220 | cgc | agc | cac | agc | aag | gag | gcc | gcg |
| 221 | Arg | Ser | His | Ser | Lys | Glu | Ala | Ala |
| 222 | | | | | | 895 | | 900 |
| 223 | cgc | ggc | cga | ggc | cca | ggc | ccc | gag |
| 224 | Arg | Gly | Arg | Gly | Pro | Gly | Pro | Glu |
| 225 | | | | | 910 | | 915 | |
| 226 | ggc | tcc | ccg | gag | gag | gcg | gcc | gag |
| 227 | Gly | Ser | Pro | Glu | Ala | Ala | Glu | Arg |
| 228 | | | | | 925 | | 930 | |
| 229 | cac | cgg | cac | cag | gat | ccg | agc | aag |
| 230 | His | Arg | His | Gln | Asp | Pro | Ser | Lys |
| 231 | | | | | 940 | | 945 | |
| 232 | cgg | cgc | gcg | cgg | cac | cgc | ggc | ggc |
| 233 | Arg | Arg | Ala | Arg | His | Arg | Gly | Gly |
| 234 | | | | | 955 | | 960 | |
| 235 | gag | agc | ggg | gag | gag | ccg | gcg | cgg |
| 236 | Glu | Ser | Gly | Glu | Glu | Pro | Ala | Arg |
| 237 | | | | | 970 | | 975 | |
| 238 | cag | cct | gct | cac | gag | gct | gtg | gag |
| 239 | Gln | Pro | Ala | His | Glu | Ala | Val | Glu |
| 240 | | | | | 990 | | 995 | |
| 241 | acg | gag | aag | gag | gct | gag | ata | gtg |
| 242 | Thr | Glu | Lys | Glu | Ala | Glu | Ile | Val |
| 243 | | | | | 1005 | | 1010 | |
| 244 | cgg | aac | cac | cag | ccc | cgg | gag | cca |
| 245 | Arg | Asn | His | Gln | Pro | Arg | Glu | Pro |
| 246 | | | | | 1020 | | 1025 | |
| 247 | act | gtg | act | gtg | ggt | ccc | atg | cac |
| 248 | Thr | Val | Thr | Val | Gly | Pro | Met | His |
| 249 | | | | | 1035 | | 1040 | |
| 250 | aag | gtg | gag | gaa | cag | cca | gag | gat |
| 251 | Lys | Val | Glu | Glu | Gln | Pro | Glu | Asp |
| 252 | 1050 | | | | 1055 | | 1060 | |
| 253 | cgc | atg | ggc | agt | cag | ccc | cca | gac |
| 254 | Arg | Met | Gly | Ser | Gln | Pro | Pro | Asp |
| 255 | | | | | 1070 | | 1075 | |

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